ELECTRICAL CONNECTOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an electrical connector, and more particularly to an electrical connector adapted for connecting with a mated connector by virtue of magnetic attraction.

2. The Related Art

With the development of electronic technology, electrical connectors are widely used in electronic products. A traditional electrical connector connected with a mated connector by magnetic attraction generally includes an insulating housing, a plurality of terminals and a plurality of magnet units assembled in the insulating housing respectively. In use, the interconnection between the electrical connector and the mated connector is apt to be influenced by the magnetic force of the magnet units. However, the size of the magnet unit often affects the magnetic force of the electrical connector. Moreover, the rapid developments of the electronic products call for more stringent requirements to miniaturization of the electrical connectors. As a result, the traditional electrical connector generally fails to meet the requirements of both miniaturization and strong magnetic force at the same time.

SUMMARY OF THE INVENTION

Accordingly, an object of the present invention is to provide an electrical connector. The electrical connector includes an insulating housing having a base body of which a front surface is inclined to act as a mating face. The mating face is concaved rearward to define a plurality of terminal grooves penetrating through the base body and a plurality of receiving grooves of substantial U-shape each surrounding one of the terminal grooves. Wherein there are some terminal grooves without being surrounded by any receiving grooves and each of them is located between every two adjacent receiving grooves. A plurality of terminals inserted forward in the terminal grooves of the insulating housing respectively. Each terminal has a contact end exposed outside through a front end of the corresponding terminal groove. A plurality of magnet units each is of substantial U-shape and is assembled in the receiving groove of the insulating housing.

As described above, each of the magnet units is of substantial U-shape and is assembled in the corresponding receiving groove of substantial U-shape to surround the corresponding terminal, so that is in favor of enlarging the size of the magnet unit so as to reinforce the magnetic attraction between the electrical connector and a mated connector, even though it is under the circumstances of no affecting the miniaturization of the electrical connector. Therefore, the electrical connector can meet the requirements of both miniaturization and strong magnetic force at the same time.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be apparent to those skilled in the art by reading the following description thereof, with reference to the attached drawings, in which:

FIG. **1** is an assembled perspective view of an electrical connector in accordance with an embodiment of the present invention;

FIG. **2** is an exploded perspective view of the electrical connector shown in FIG. **1**; and

FIG. **3** is a perspective view of an insulating housing of the electrical connector shown in FIG. **1**.

DETAILED DESCRIPTION OF THE EMBODIMENT

Referring to FIGS. **1-2**, an electrical connector **100** according to an embodiment of the present invention includes an insulating housing **10**, a plurality of terminals **20** and a plurality of magnet units **30** assembled in the insulating housing **10**.

Referring to FIG. **2** and FIG. **3**, the insulating housing **10** has a base body **101** of which a front surface is inclined to act as a mating face **11**. The mating face **11** is concaved rearward to define a plurality of terminal grooves **12** penetrating through the base body **101** and a plurality of receiving grooves **14** of substantial U-shape each surrounding one of the terminal grooves **12**. Wherein there are some terminal grooves **12** without being surrounded by any receiving grooves **14** and each of them is located between every two adjacent receiving grooves **14**. An inner sidewall of the receiving groove **14** defines an interfering rib **141**. A rear end of each terminal groove **12** is spread outward to form a positioning fillister **13**. An inner sidewall of the positioning fillister **13** shows a flat shape and is acted as a foolproof wall **131**. A rear surface of the base body **101** protrudes rearward to form at least one locating portion **15** with a locating hole **151** opened therein, and a tongue board **16** with a buckle portion **161** protruding therefrom.

Referring to FIG. **1** and FIG. **2**, the terminals **20** are inserted forward in the terminal grooves **12** of the insulating housing **10** respectively. Each terminal **20** has a contact end **21** exposed outside through a front end of the corresponding terminal groove **12**. Each of the terminals **20** has a cylindrical connecting portion **26** inserted forward in the terminal groove **12**. A front end of the connecting portion **26** is slantwise designed to form the contact end **21**. A rear end of the connecting portion **26** protrudes outward to form a blocking portion **23** positioned in the positioning fillister **13**, and protrudes rearward to form a soldering portion **25** stretching behind the base body **101**. A part of the blocking portion **23** corresponding to the foolproof wall **131** is cut off to form a foolproof face **24** cooperating with the foolproof wall **131** to avoid mis-inserting the terminal **20** in the terminal groove **12** and further ensure the contact end **21** of the terminal **20** and the mating face **11** of the insulating housing **10** in the same inclined plane. An outer periphery of the connecting portion **26** protrudes outward to form a fastening portion **22** interfering with an inner periphery of the corresponding terminal groove **12** to secure the terminal **20** in the terminal groove **12**.

Referring to FIG. **1** and FIG. **2**, each of the magnet units **30** is of substantial U-shape and steadily assembled in the corresponding receiving groove **14** of the insulating housing **10** by interfering with the interfering rib **141**. A front side (not labeled) of the magnet unit **30** is inclined to make the contact ends **21** of the terminals **20**, the mating face **11** of the base body **101** and the front sides of the magnet units **30** located in the same inclined plane.

As described above, each of the magnet units **30** is of substantial U-shape and is assembled in the corresponding receiving groove **14** of substantial U-shape to surround the corresponding terminal **20**, so that is in favor of enlarging the size of the magnet unit **30** so as to reinforce the magnetic attraction between the electrical connector **100** and a mated connector (not shown), even though it is under the circumstances of no affecting the miniaturization of the electrical connector **100**. Therefore, the electrical connector **100** can